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Diversion Box 240-S-151/ Waste Management/PPC/AS	Ruth A. Esch	N/A

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15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DP-158	N/A	0	60-Day Waste Compatibility Safety Issue and Final Results for Diversion Box 240-S-151, Grab Samples 240-S-151-TOP, 240-S-151-MIDDLE and 240-S-151-BOTTOM	Q	2	1	1

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

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2	1	Cog.Eng. R.A. Esch	RAEsch	12/1/95							
2	1	Cog. Mgr. J.G. Kristofzski	RAEsch for per telecon	12/1/95 15:03							
2	1	QA Tzu L. Tung	Tzu Li Tung	12/1/95							
		Safety									
		Env.									
2	1	A.D. Rice	A.D. Rice	12-1-95							

18.	19.	20.	21. DOE APPROVAL (if required) Ctrl. No.
A.E. Young Signature of EDT Originator — Date 12/01/95	N/A Authorized Representative for Receiving Organization — Date	J.G. Kristofzski Cognizant Manager — Date 12/1/95 15:03	[ ] Approved [ ] Approved w/comments [ ] Disapproved w/comments

BD-7400-172-2 (04/94) GEF097

60-Day Waste Compatibility Safety Issue and Final Results for Diversion Box 240-S-151, Grab Samples 240-S-151-TOP, 240-S-151-MIDDLE and 240-S-151-BOTTOM

Ruth A. Esch
Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

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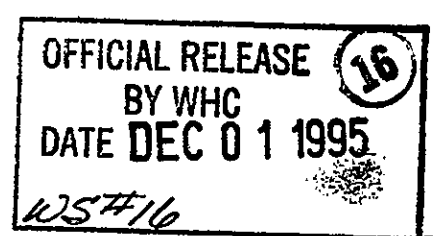
Abstract: N/A



Release Approval — Date — Release Stamp

Approved for Public Release

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-158, REV. 0

ANALYTICAL SERVICES

60-DAY WASTE COMPATIBILITY SAFETY ISSUE AND FINAL RESULTS FOR DIVERSION BOX 240-S-151 GRAB SAMPLES 240-S-151-TOP, 240-S-151-MIDDLE AND 240-S-151-BOTTOM

DATE PRINTED: DECEMBER 1, 1995

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This Document consists of pages 1 through 183, plus pages 6, 41 and 42 were intentionally left blank.

NARRATIVE

60 DAY WASTE COMPATIBILITY SAFETY ISSUE AND FINAL RESULTS FOR DIVERSION BOX 240-S-151 GRAB SAMPLES 240-S-151-TOP, 240-S-151-MIDDLE AND 240-S-151-BOTTOM

Summary

Three grab samples (240-S-151-TOP, 240-S-151-MIDDLE AND 240-S-151-BOTTOM) were taken from diversion box 240-S-151. Samples were collected on October 24, 1995, and received by the 222-S Laboratory on the same day. The TOP and MIDDLE samples were expected to be liquids and the BOTTOM sample was expected to have solids. At the direction of West Tank Farms Transition Projects Engineering, only the TOP and MIDDLE samples were analyzed to support the waste compatibility safety program. The BOTTOM sample was not analyzed at this time because there were no solids present (refer to message from M. J. Sutey to R. A. Esch in the correspondence section). The accuracy criterium of 80% - 120% was met for all analyses. One test failed the precision criterium of ±20%. Refer to the analytical deviations section for an explanation. No notifications were required based on sample results.

Appearance, OTR and Sample Breakdown

Attachment 1 is provided as a cross-reference for relating the tank farm customer ID numbers with the 222-S Laboratory LABCORE sample numbers, and the portion of the sample that was analyzed.

240-S-151-TOP

This sample was collected at a depth of 150 inches. Visual observation indicated that the sample was a clear colorless liquid with no solids. The dose rate was 2.5 mrad/hr. There was no organic layer present.

Two subsamples, approximately 20 mL each, were created for analysis of inorganic analytes and radionuclides. A third 40 mL subsample was created for inductively coupled plasma (ICP) analysis only.

The remainder of the liquid was archived for possible future analysis.

240-S-151-MIDDLE

This sample was collected at a depth of 173 inches. Visual observation indicated that the sample was a clear colorless liquid with no solids. The dose rate was 2.5 mrad/hr. There was no organic layer present.

Two subsamples, approximately 20 mL each, were created for analysis of inorganic analytes and radionuclides. A third 40 mL subsample was created for ICP analysis only.

The remainder of the liquid was archived for possible future analysis.

240-S-151-BOTTOM

This sample was collected at the bottom of the diversion box (196 in.). It was noted on the chain of custody that the sample appeared to be all liquid and clear, no sludge. Visual observation in the lab also indicated that the

sample was a clear colorless liquid with no solids. The dose rate was 2.5 mrad/hr. There was no organic layer present. West Tank Farms Transition Projects Engineering was immediately informed that there were no solids present in this sample. The Laboratory was directed to not analyze the sample. The sample was archived for possible future analysis.

Analytical Results

Attachments

Two result tables are attached. Table 1 is the summary report from the Laboratory Information Management System (LABCORE).

Table 2 provides the ICP serial dilution results. The serial dilution values were obtained from the raw data. The accuracy of the ICP results was assessed using these results in addition to matrix spikes. In those instances where an analyte concentration significantly exceeds the spike added the matrix spike recovery result may not be meaningful. In these cases the serial dilution results are used to assess accuracy. The sample was analyzed both undiluted and with a 5-fold serial dilution. For acceptable performance, the relative percent difference (RPD) between the serial dilution and the undiluted results must be ≤10%.

Analytical Deviations

240-S-151-TOP
The parent sample, S95T003121 was subsampled for analysis. The subsamples were not filtered. Sample number S95T003124 was analyzed for inorganic analytes, S95T003126 for radionuclides, and S95T003715 for ICP.

For gamma energy analysis (GEA) ^{60}Co results are given in Table 1 with the ^{137}Cs results.

240-S-151-MIDDLE
The parent sample, S95T003122 was subsampled for analysis. The subsamples were not filtered. Sample number S95T003125 was analyzed for inorganic analytes, S95T003127 for radionuclides, and S95T003716 for ICP.

For GEA ^{60}Co results are given in Table 1 with the ^{137}Cs results.

The RPD between the sample duplicate for the TOC analysis was slightly above of the required limit of ±20%. No rerun was performed because the result for sample was less than 5 times the detection limit.

Procedures

The volume percent solids by centrifugation test was not performed on any of the samples because there were no solids present to perform the test.

Procedure LA-514-114 Rev. C-1 was used to perform the differential scanning calorimetry (DSC) analysis. This procedure is for DSC analysis using the Perkin Elmer instrument. Procedure LA-514-113, referenced in the TSAP, is the

procedure for DSC analysis using the Mettler instrument. The two procedures are analytically equivalent. The analysis was performed on direct samples. No analytical problems were noted.

Procedures LA-560-112 Rev. B-0 and LA-514-114 Rev. C-1 were used to perform the thermogravimetric analysis (TGA) for percent moisture. These procedures are for TGA analysis using the Mettler and Perkin Elmer instruments, respectively. The two procedures are analytically equivalent. The analysis was performed on direct samples. No analytical problems were noted.

Procedure LA-548-121 Rev. D-1 was used for the GEA for ^{60}Co and ^{137}Cs. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-220-101 Rev. D-1 was used for the analysis of ^{90}Sr. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-505-161 Rev. B-0 was used to perform the ICP analysis for Al, Fe, and Na. This procedure is for ICP analysis using the Thermo Jarrell Ash (TJA) ICP instrument. Procedure LA-505-151, referenced in the TSAP, is the procedure for ICP analysis using the Analytical Research Laboratory (ARL) instrument. The two procedures are analytically equivalent. The samples were acidified and then analyzed directly. This acidification is denoted with a "D" in the aliquot class column (A#) in Table 1. No analytical problems were noted.

Procedure LA-533-105 Rev. D-1 was used to perform the ion chromatography (IC) analysis for Cl^-, F^-, PO_4^{3-}, SO_4^{2-}, NO_3^-, and NO_2^-. The analysis was performed on direct samples.

Procedure LA-212-106 Rev. A-0 was used to perform the pH analysis on the supernate sample. No analytical problems were noted.

Procedure LA-344-105 Rev. C-0 was used to perform the total organic carbon (TOC) analysis. The analysis was performed on direct samples. No analytical problems were noted.

Procedure LA-622-102 Rev. C-0 was used to perform the total inorganic carbon (TIC) analysis. The procedure referenced in the TSAP (LA-344-105) is incorrect for this analysis. All analyses were performed on direct samples. No analytical problems were noted.

Procedure LA-943-127 Rev. B-0 was used to perform the $^{239/240}Pu$ analysis. The procedure specified in the TSAP (LA-503-156) was superseded by the above procedure. The analysis was performed on direct samples. No analytical problems were noted.

Procedure LA-953-103 Rev. A-4 was used for the analysis of ^{241}Am. The samples were analyzed directly. No analytical problems were noted.

Procedure LA-510-112 Rev. C-3 was used to perform the specific gravity (SpG) analysis. The analysis was performed on direct samples. No analytical problems were noted.

Reference

WHC-SD-WM-TSAP-037, REV. 1B, "Compatibility Grab Sampling and Analysis Plan", dated October 19, 1995, Westinghouse Hanford Company, Richland, WA 99352

SD-WM-DR-158
RWO, 240-S-151

Due to the large volume,
a copy of the data
supporting the Data
Validation Report and
the Sample Data Summary,

Pages 6 thru 13,

is available only from
Central Files.

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Data Turnaround: ☐ Priority ☒ Normal

Collector: JAMES Sickels	Company Contact: N/A	Telephone No.: 373-3578
Project Designation: N/A	Sampling Location: 240-S-151	SAF No.: N/A
Ice Chest No.: N/A	Field Logbook No.: N/A	Method of Shipment: WHC TRANSPORTATION
Shipped To: 2223	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks: RADIOACTIVE	Preservative: N/A	
	Type of Container: GLASS	
	No. of Container(s): 2	
Special Handling and/or Storage: N/A	Volume: 125 ML (EA)	

SAMPLE ANALYSIS

Sent A Top 1642 Middle 1641

Sample No.	Matrix*	Date Sampled	Time Sampled	
240-S-151-Top	L	10/24/95	1400	< DOSE ON CONTACT 1.5 mR/HR
240-S-151-Middle	L	10/24/95	1408	

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: James Sickels	Date/Time: 10/24/95 1450	Received By: Sidney Gibbons	Date/Time: 10-24-95 1505
Relinquished By: Sidney Gibbons	Date/Time: 10-24-95 1535	Received By: M Higgins	Date/Time: 10-24-95 1535
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

COPY

Matrix*:
S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original - Sample Yellow - Sampler

GC-6000-SZB 11/93

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WHC-SD-WM-DP-158, REV. 0

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround: ☐ Priority ☒ Normal

Collector	James Sickels
Company Contact	N/A
Telephone No.	373-3578
Project Designation	N/A
Sampling Location	240-S-151
SAF No.	N/A
Ice Chest No.	N/A
Field Logbook No.	N/A
Method of Shipment	WHC Transportation
Shipped To	222S
Offsite Property No.	N/A
Bill of Lading/Air Bill No.	N/A
Possible Sample Hazards/Remarks	Radioactive
Special Handling and/or Storage	N/A

Preservative	N/A
Type of Container	Glass
No. of Container(s)	1
Volume	125 ml

SAMPLE ANALYSIS

Seal # 1640

Sample No.	Matrix*	Date Sampled	Time Sampled	
240-S-151-Btl	SL	10/24/95	1412	Dose on Contact < .5 mR/hr

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
James Sickels [signature]	10/24/95 1450	[signature]	10-24-95 1500
[signature]	10-24-95 15:15	[signature]	10-24-95 1515

SPECIAL INSTRUCTIONS

Sample appears to be all liquid and clear No sludge

[initials] 10/24/95

COPY

Matrix*

S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION	Received By	Title	Date/Time

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original - Sample Yellow - Sampler

BC-6000-828 (12/92)

SD-WHF-WP-120, Rev 0, 240-S-151

Due to the large volume,
a copy of the data
supporting the Data
Validation Report and
the Sample Data Summary,

Pages 16 thru 183,

is available only from
Central Files.

DISTRIBUTION SHEET

To Distribution	From Characterization Plans, Coordination and Reports	Page 1 of 1 Date: 12/01/95
Project Title/Work Order WHC-SD-WM-DP-158, Rev. 0, "60-Day Waste Compatibility Safety Issue and Final Results for Diversion Box 240-S-151, Grab Samples 240-S-151-TOP, 240-S-151-MIDDLE and 240-S-151-BOTTOM"		EDT NO.: EDT-610069 ECN NO.: N/A

Name	MSIN	Text With all Attach	EDT/ECN ONLY
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S. J. Harris	K7-22	X	
K. L. Silvers	P7-27		X
U.S. Department of Energy, RL			
C. A. Babel	S7-54	X	
Westinghouse Hanford Company			
J. N. Appel	G3-21		X
H. Babad	S7-30	X	
R. A. Esch	T6-06	X	
S. D. Estey	R2-11	X	
G. D. Forehand	S7-31		X
V. W. Hall	T6-03	X	
D. C. Hetzer	S6-31		X
L. Jensen	R2-12	X	
N. W. Kirch	R2-11	X	
M. J. Kupfer	H5-49	X	
J. E. Meacham	S7-15	X	
P. M. Morant	H4-25	X	
K. L. Powell	T6-04		X
L. W. Shelton	H5-49	X	
B. C. Simpson	R2-12		X
M. J. Sutey	T4-07	X	
J. A. Voogd	H5-03		X
Central Files	A3-88	2	
EDMC	H6-08	X	
LTIC	T6-03		X
TCRC	R2-12	X	
TFIC (Tank Farm Information Center)	R1-20		X
Washington State Department of Ecology			
Single-Shell Tank Unit Manager			
A. B. Stone	B5-18	X	
U. S. Department of Energy			
Jim Poppiti 12800 Middlebrook Rd. Trevion II, EM-36 Germantown, MD 20874			X
Los Alamos Technical Associates			
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